

FAS – Office of Global Analysis (OGA)  
United States Department of Agriculture (USDA)  
International Operational Agriculture Monitoring Program



**May Summary Report**

**May 29<sup>th</sup>, 2009**

1. Afghanistan's grain production consists of irrigated and rainfed cropland. Rainfed crop production typically varies with seasonal precipitation whereas irrigated cropland relies on snowmelt in the spring in addition to rainfall during its growth cycle. Although 90% of irrigated and rainfed cropland is planted during the winter season (October to December), some regions also produce a spring season crop. Approximately 80% of Afghanistan's total grain production is wheat (Appendix).
2. The current outlook for total national wheat production in MY 2009/10 is currently forecast to reach a near-record level owing to extremely beneficial late-season rainfall and irrigation conditions. Satellite imagery analysis confirms that crop development has been superb in many primary producing areas, including the upland rainfed crops regions in northern Afghanistan. This is a remarkable turnaround in grain production prospects for Afghanistan following one of the worst droughts in decades which devastated crops across the country last year.
3. The bulk of the winter grain crop (wheat) is grown in the northern half of the country, which is composed of three major agricultural regions that produce 95% of total rainfed wheat and 55% of total irrigated wheat: Northwest, North, and Northeast. The North Region (Sari Pul, Samangan, Balkh, Joyzjan, and Faryab provinces) which contains over half of total national rainfed wheat area was significantly affected by last year's drought. This year it is showing signs of much improved crop conditions and above-average production potential, owing to extremely beneficial rainfall during the later parts of the growing season. Both irrigated and rainfed grain crops in the Northwest region are also showing signs of above average production potential this season, whereas crops in the Northeast region (Bughlan, Kunduz, Takhar, Badakhshan provinces) are showing above average production for irrigated cropland and near average grain production in the rainfed cropland.
4. Season-to-date cumulative rainfall is significantly improved over last year's drought conditions, especially in the important wheat growing areas of northern Afghanistan (Figure 1). Total seasonal rainfall has been near or above normal in the Northwest and Northeast regions, whereas the higher elevation portions of the North region experienced slightly below normal rainfall throughout the season. However, moisture conditions significantly improved in the primary rainfed growing areas of the North region during the critical months of April and May, with well above average rainfall causing a huge increase in grain crop green-up and growth (Figure 2) These timely rains acted to revive rainfed grain crops at a critical growth stage and boost overall regional production potential.
5. MODIS NDVI<sub>1</sub> time-series data were used to evaluate crop vigor and abundance compared to MY 2008/09 and the 5-year average (Figures 3 & 4).

<sup>1</sup> Normalized Difference Vegetation Index (NDVI) is related to vegetation abundance and vigor.

## **Rainfed Cropland**

Rainfed cropland in the Northern regions, which produce 95% of the total national rainfed wheat crop, is showing significant improvement compared to MY 2008/09, and above average vegetative crop conditions compared to the benchmark production year of MY 2007/08. The Northwest and North regions in particular are showing well above average crop vegetative vigor, however surprisingly, the Northeast region is only showing near normal crop vegetative conditions despite well above normal seasonal rainfall (Figure 5). It is possible that last year's severe drought coupled with dry autumn conditions led to a decline in rainfed winter grain plantings in the Northeast region.

## **Irrigated Cropland**

Irrigated cropland in the Northwest, North, and Northwest regions, which produce a combined 55% of total irrigated wheat, is showing significant improvements over the MY 2008/09 drought impacted crop and above average vegetative crop conditions compared to the 5-year average\*. The South, Southwest, and East regions, which produce 35% of total irrigated wheat, are also showing above average crop conditions. This is especially true in the larger irrigated provinces of Helmand and Kandahar where approximately 11% of total irrigated wheat is produced (Figures 6). Although rainfall in the southern regions was less than normal for the MY 2009/10 season, the winter snowpack and timing of spring snowmelt was significantly improved over last year. The early melt of last year's snowpack caused a severe shortage of irrigation supplies to northern grain producing areas and exacerbated the effects of severe drought conditions prevalent in the region. The combination of extremely low rainfall and early snowmelt last year led to one of the worst grain production failures in the past decade (Figure 7).

6. High resolution Quickbird and moderate resolution AWiFS imagery were analyzed for both intra- and inter-seasonal crop growth in the rainfed and irrigated cropland regions (Figure 8). Quickbird imagery acquired over wheat growing areas in Herat province showed steady increases in cropland abundance and vigor through the month of May (Figures 9 & 10). In contrast, Balkh province is already showing signs of crop senescence (Figure 11). Satellite imagery comparisons between MY 2009/10 AWiFS imagery and MY 2008/09 Landsat imagery in rainfed wheat growing areas of Balkh province also shows significant improvements over the previous year's drought decimated crop (Figure 12).

\* In order to compare the current MY 2009/10 crop to normal conditions, the 5-year average does not include the MY 2008/09 drought year.

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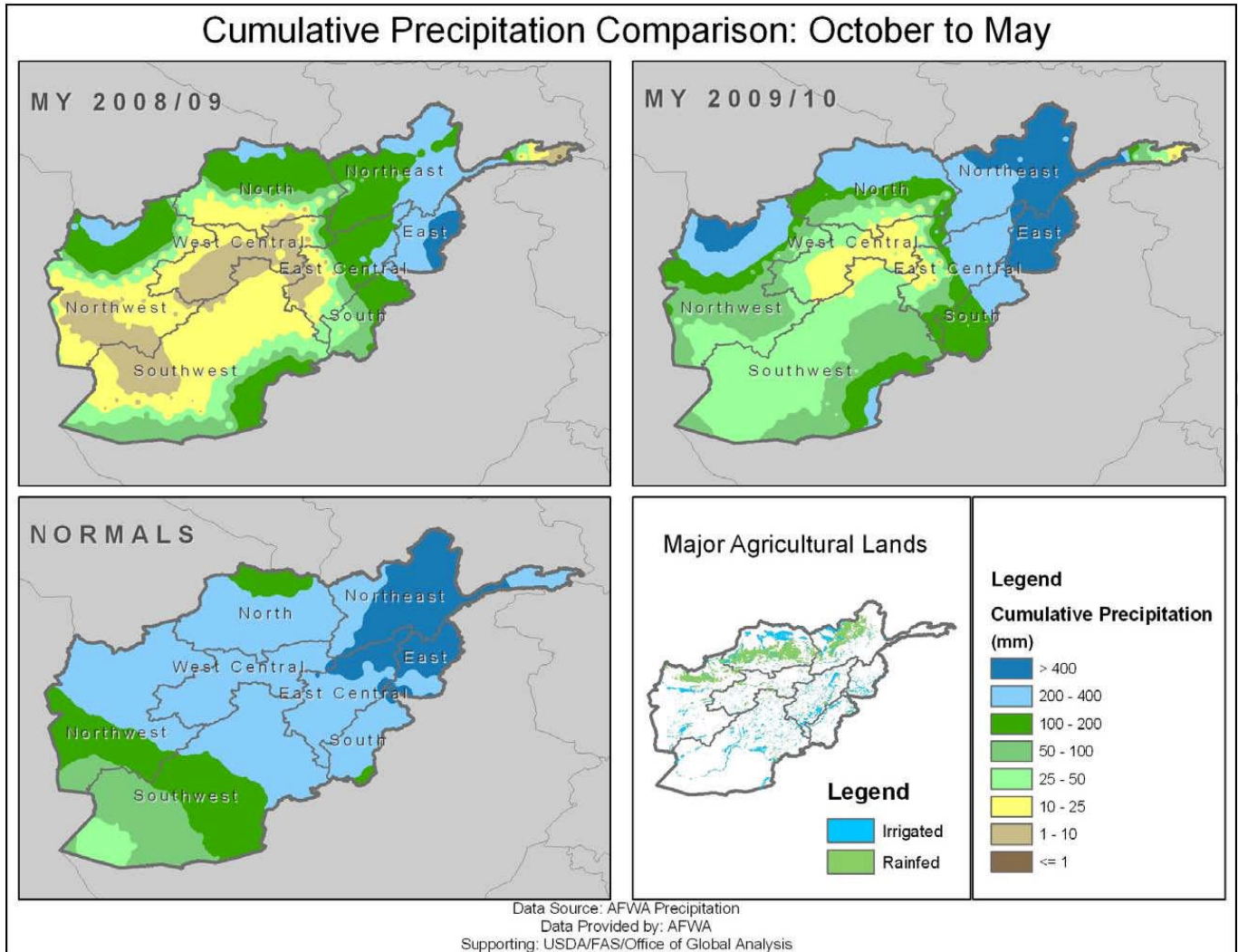


Figure 1: Cumulative rainfall comparison: MY 2009/10, MY 2008/09, and Normal.

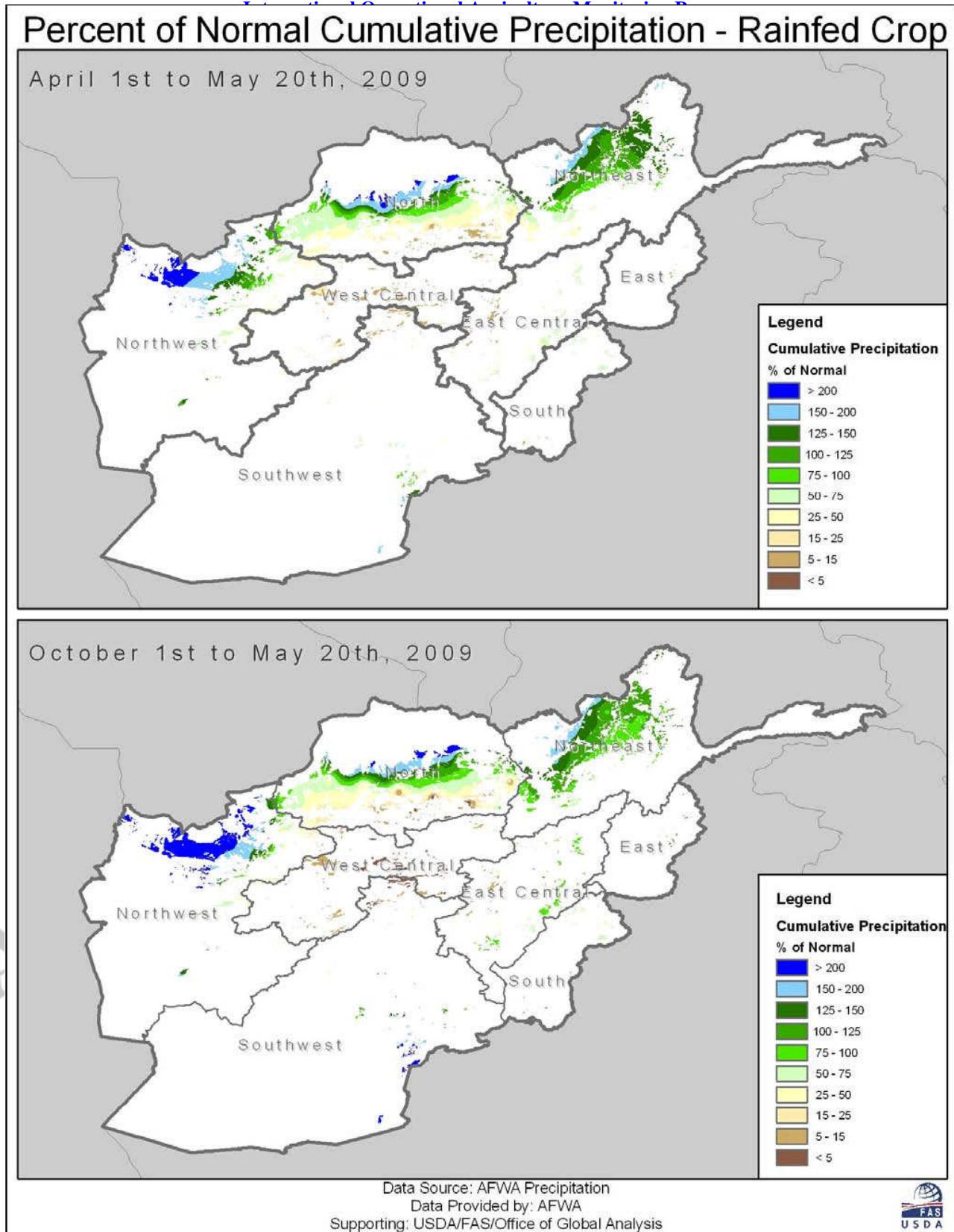


Figure 2: Percent of normal rainfall: End of season and season-to-date.

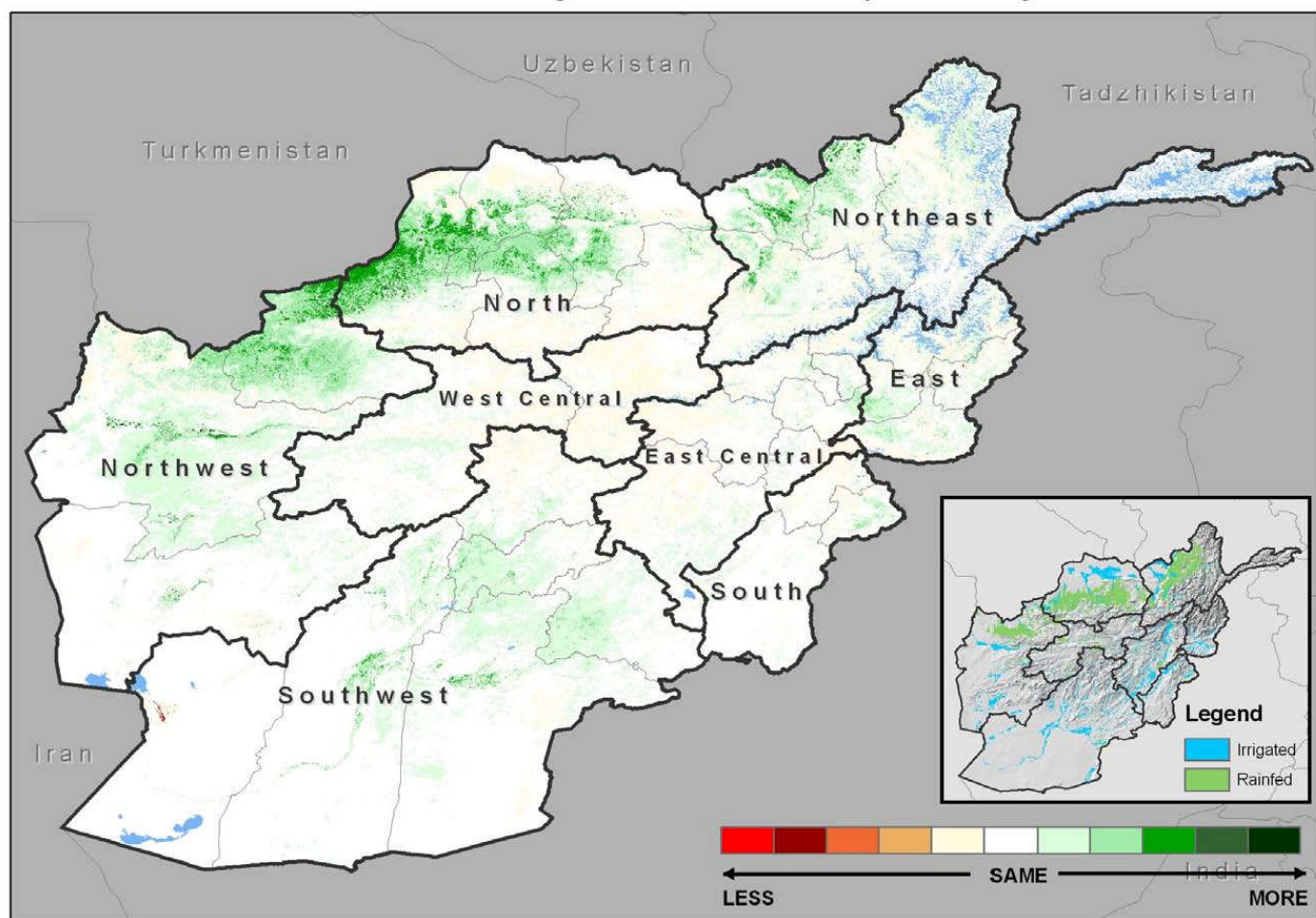
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Figure 3: MODIS NDVI change at national level: MY 2009/10 vs. 5-year average.



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MODIS NDVI Change: MY 2009/10 vs. 5-year Average\*



\*excludes MY 2008/09 drought year

Data Source: MODIS NDVI  
Data Provided by: University of Maryland  
Supporting: USDA/FAS/OGA/IPAD



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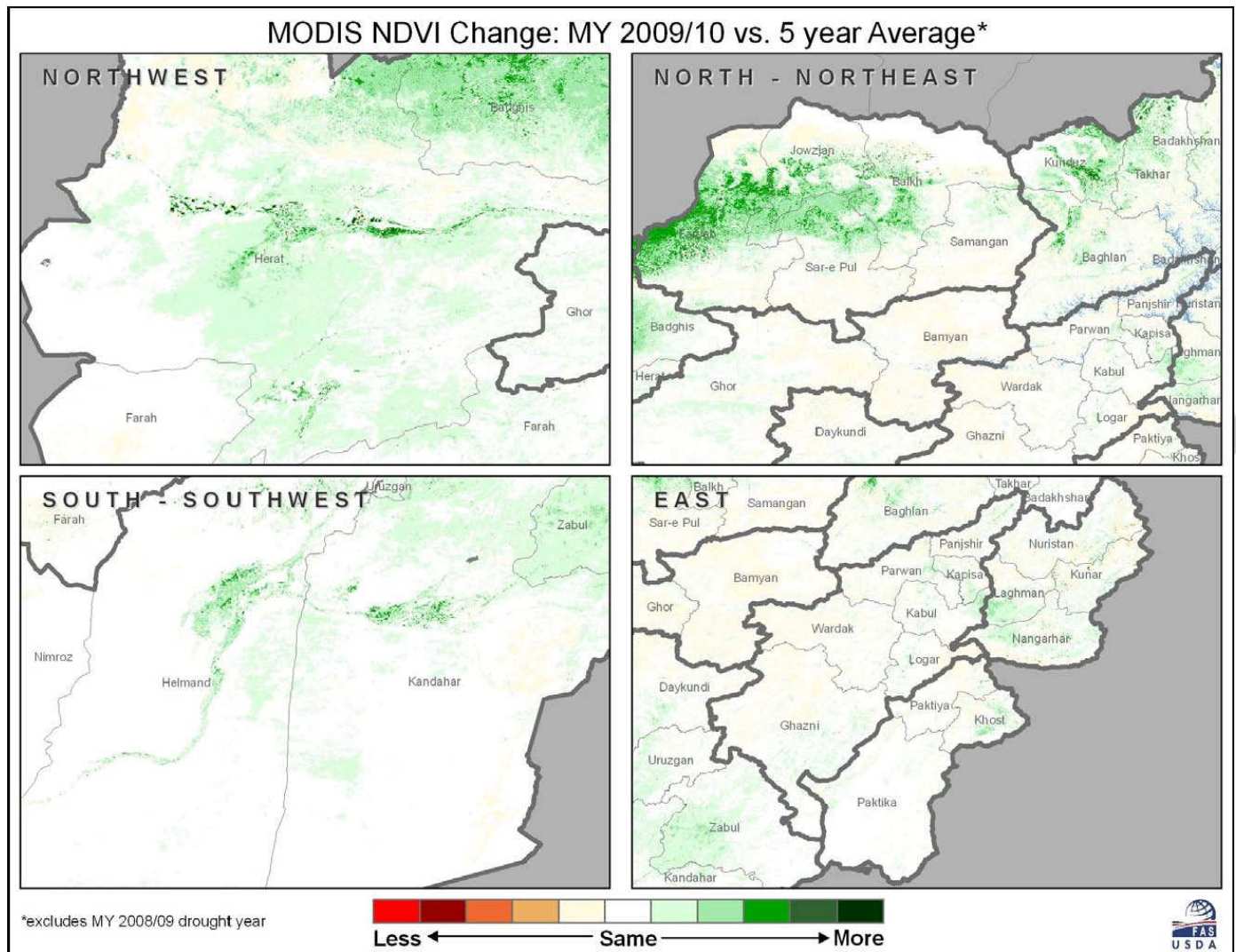


Figure 4: MODIS NDVI change at agricultural regional level: MY 2009/10 vs. 5-year average

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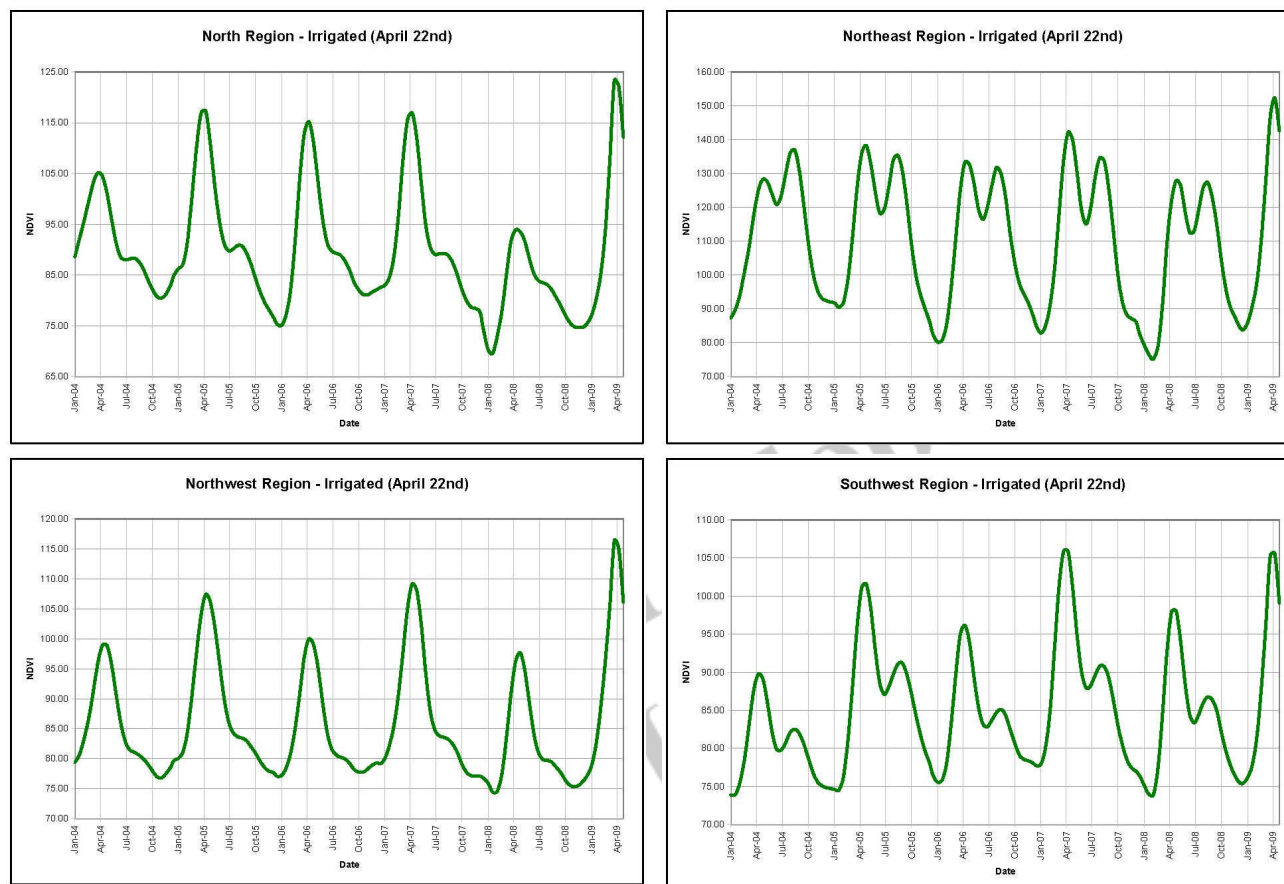


Figure 5: MODIS NDVI time-series for regional irrigated crop.



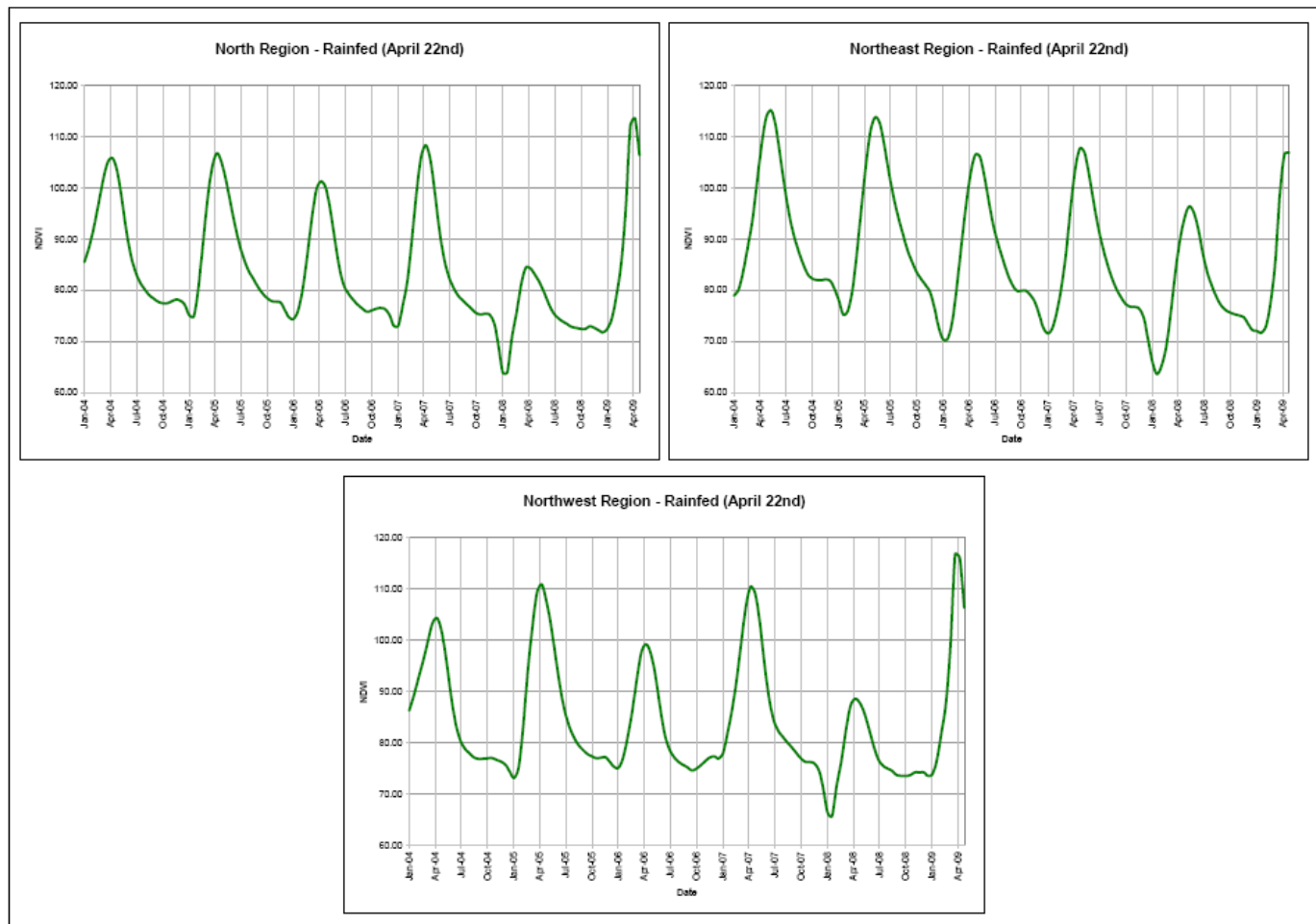


Figure 6: MODIS NDVI time-series for regional rainfed crop.

## Snow Cover: MY 2009/10 vs MY 2008/09

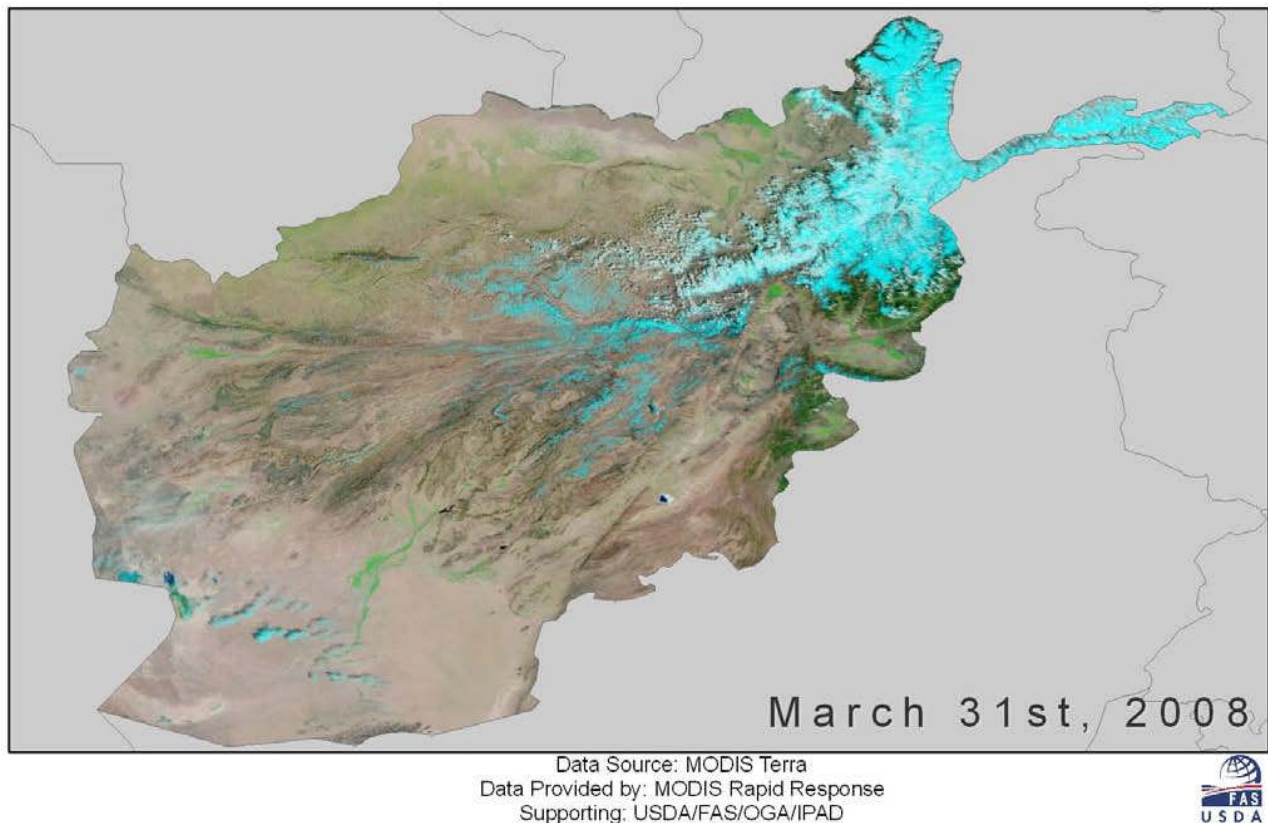
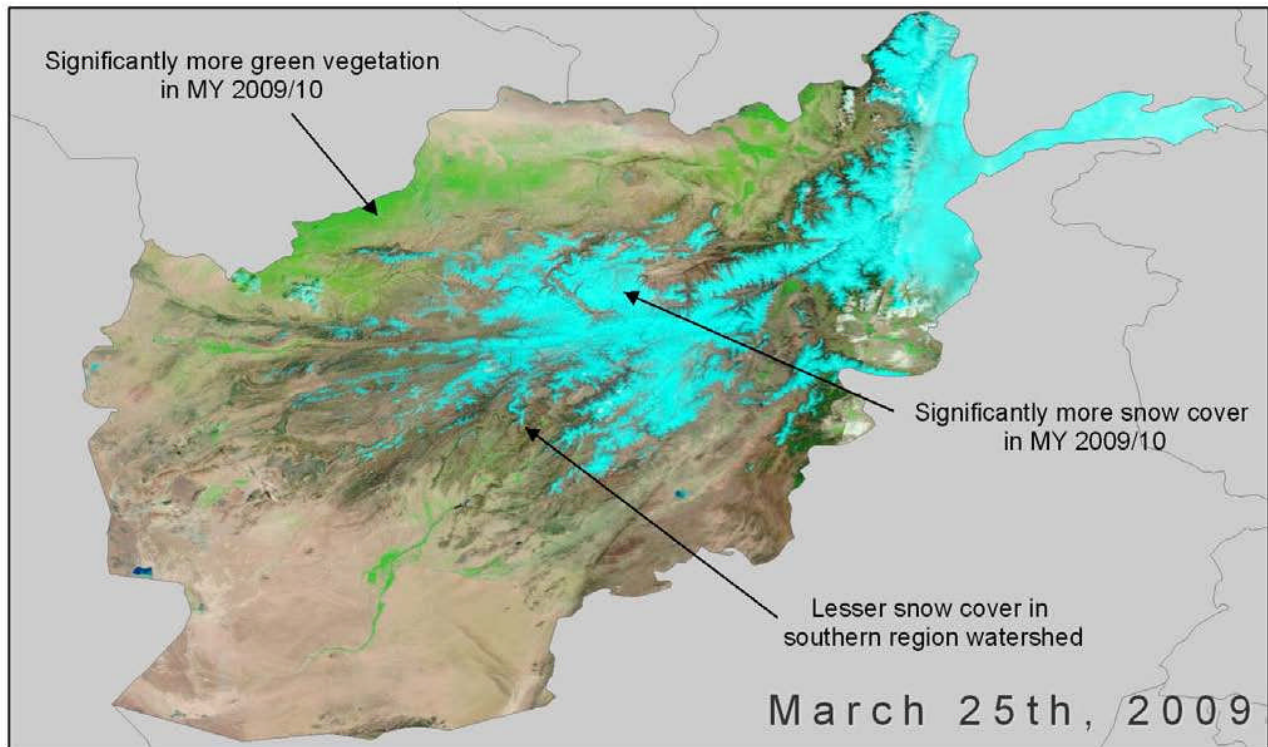
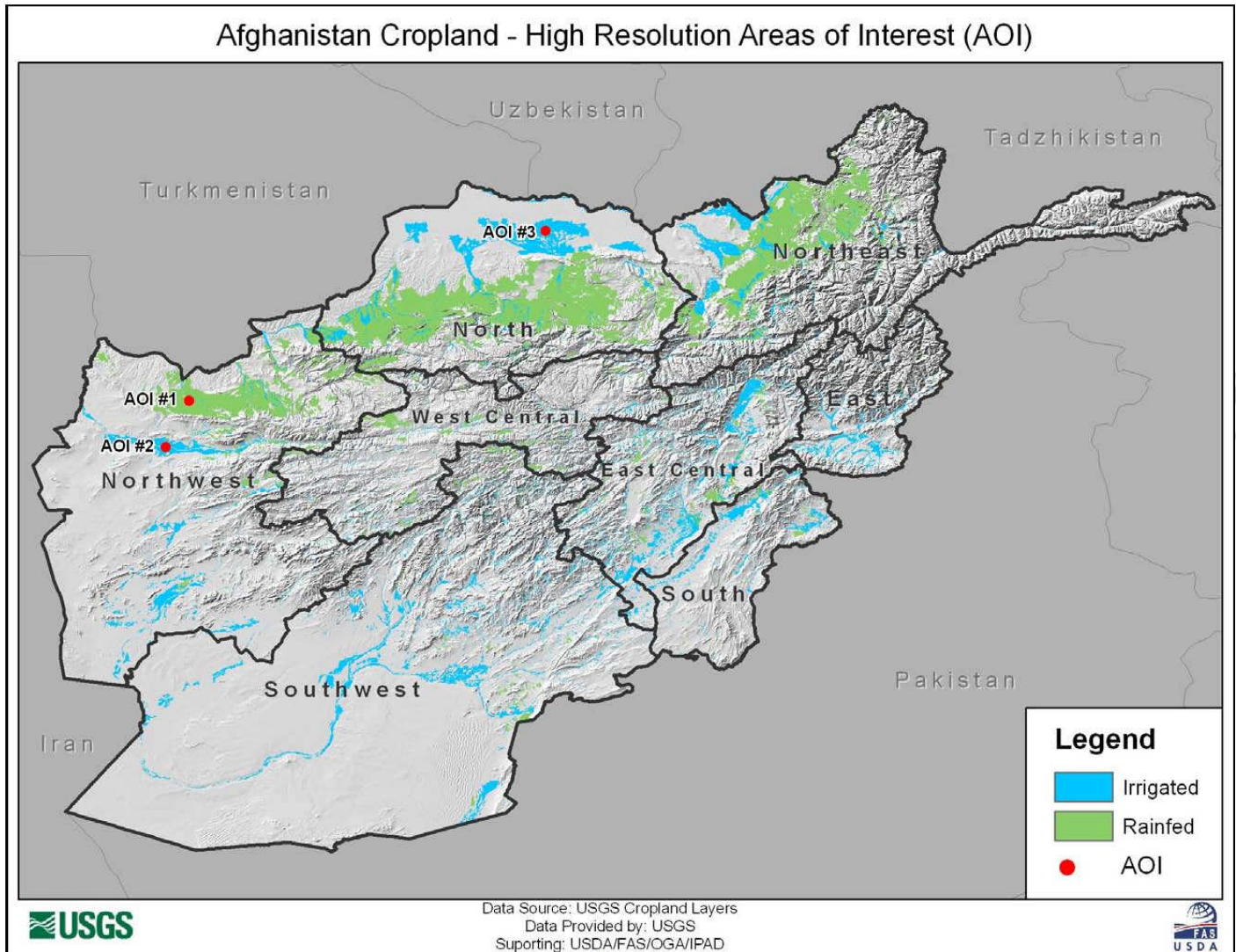


Figure 7: Snow cover comparison between MY 2009/10 and MY 2008/09: Late-March MODIS imagery.

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Figure 8: Afghanistan cropland: High resolution imagery areas of interest (AOI).

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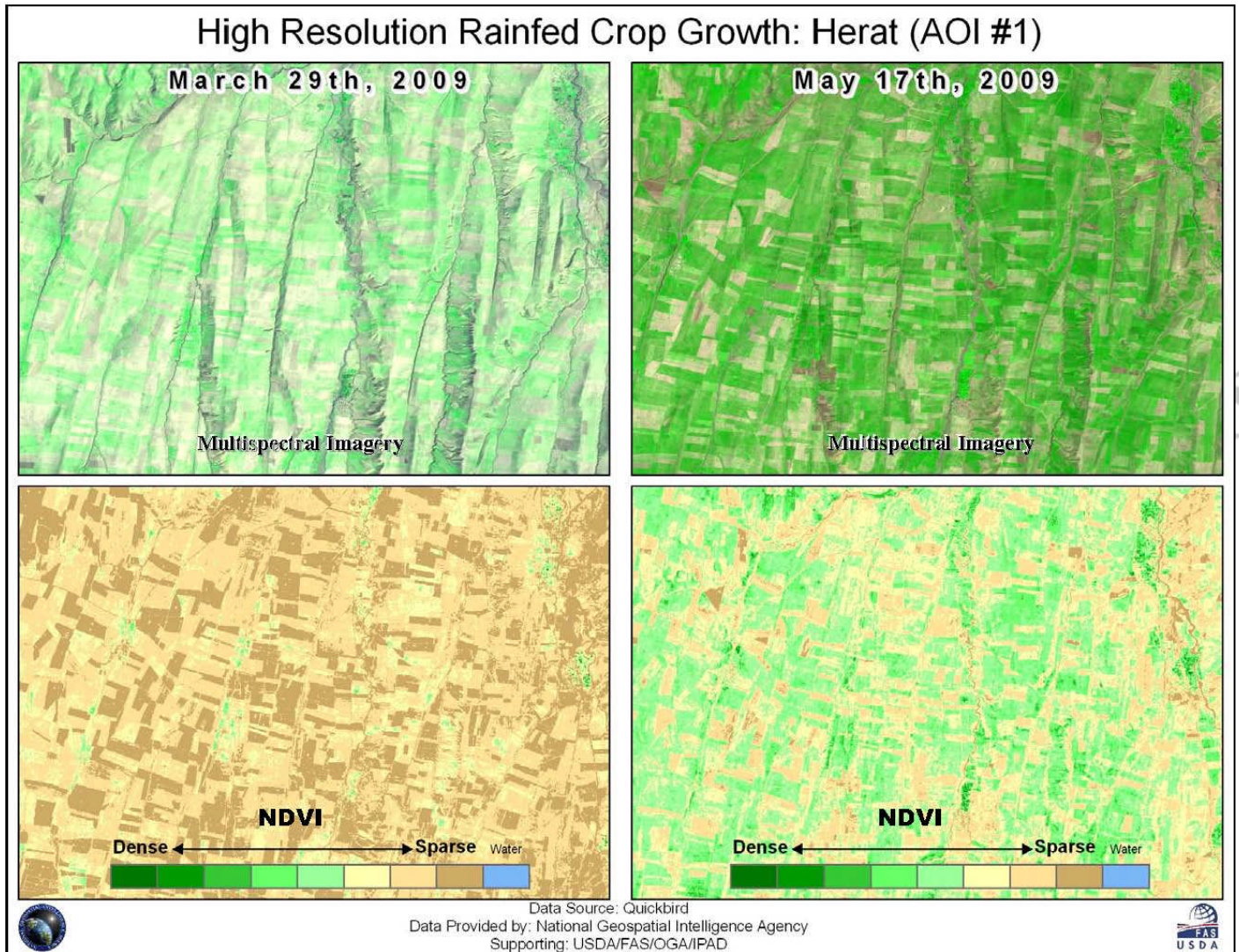


Figure 9: Rainfed cropland in Herat province showing signs of crop progress between the months of March and May.



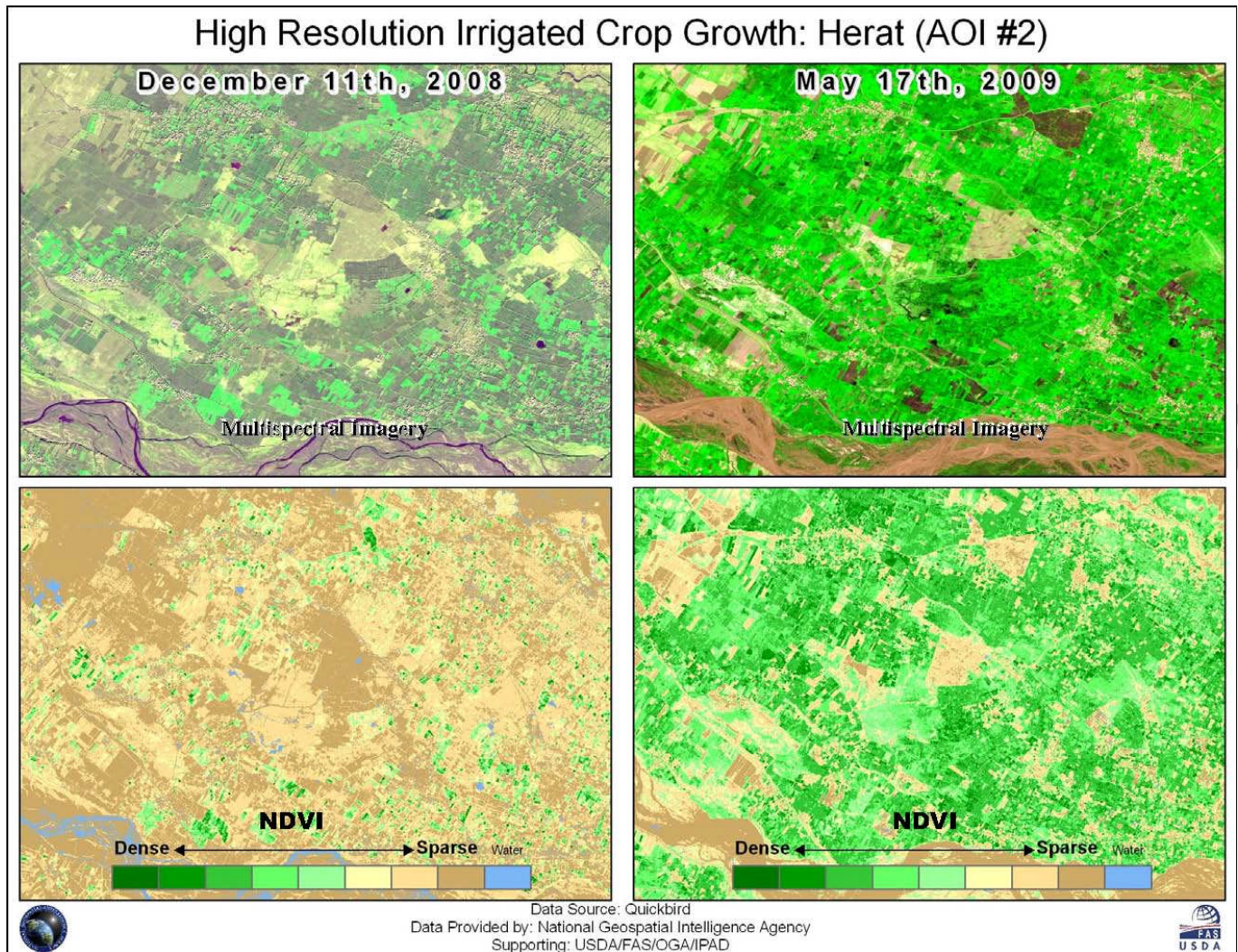


Figure 10: Irrigated cropland in Herat province showing signs of crop progress between start and peak season.



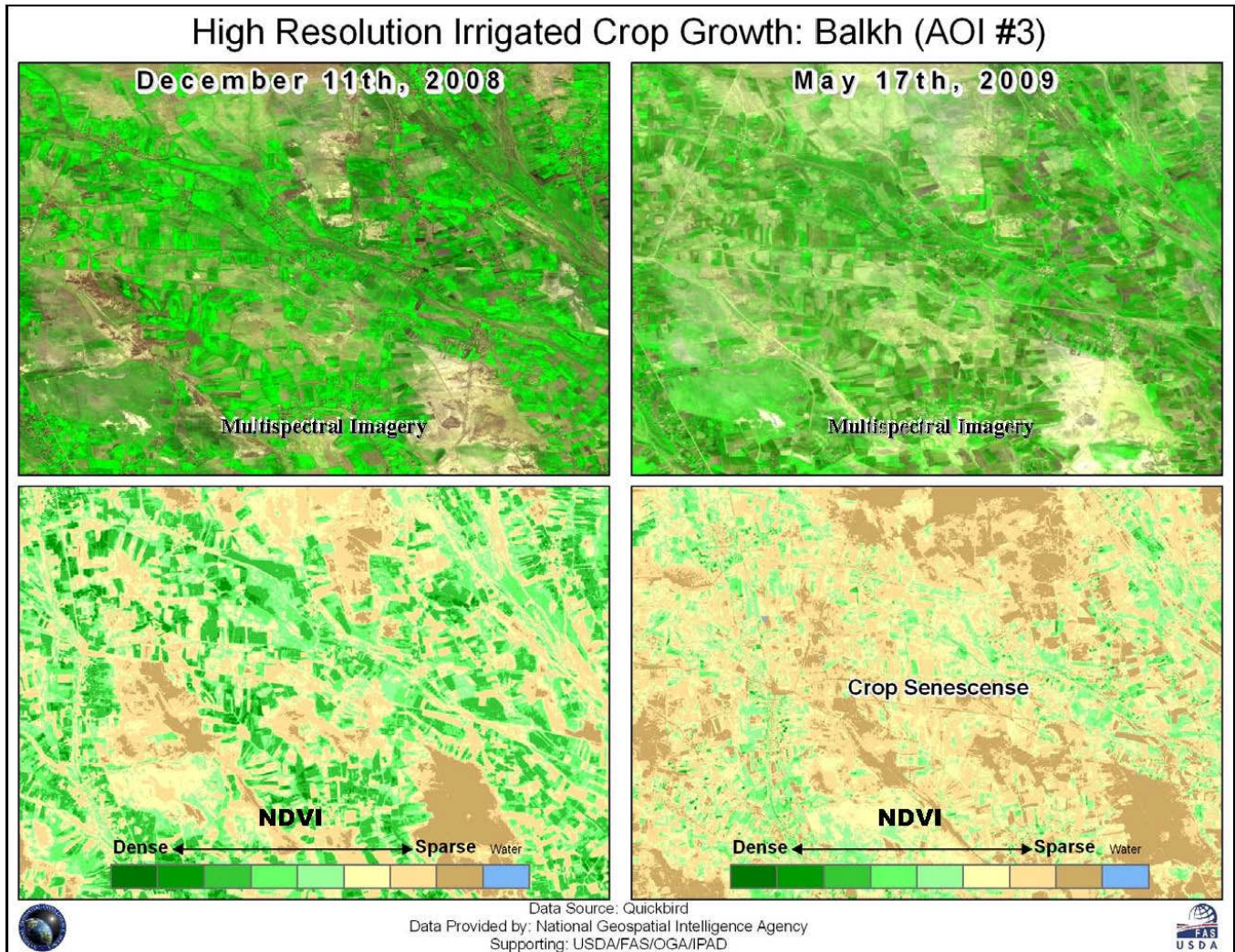


Figure 11: Irrigated cropland in Balkh province showing pre-harvest crop senescence.



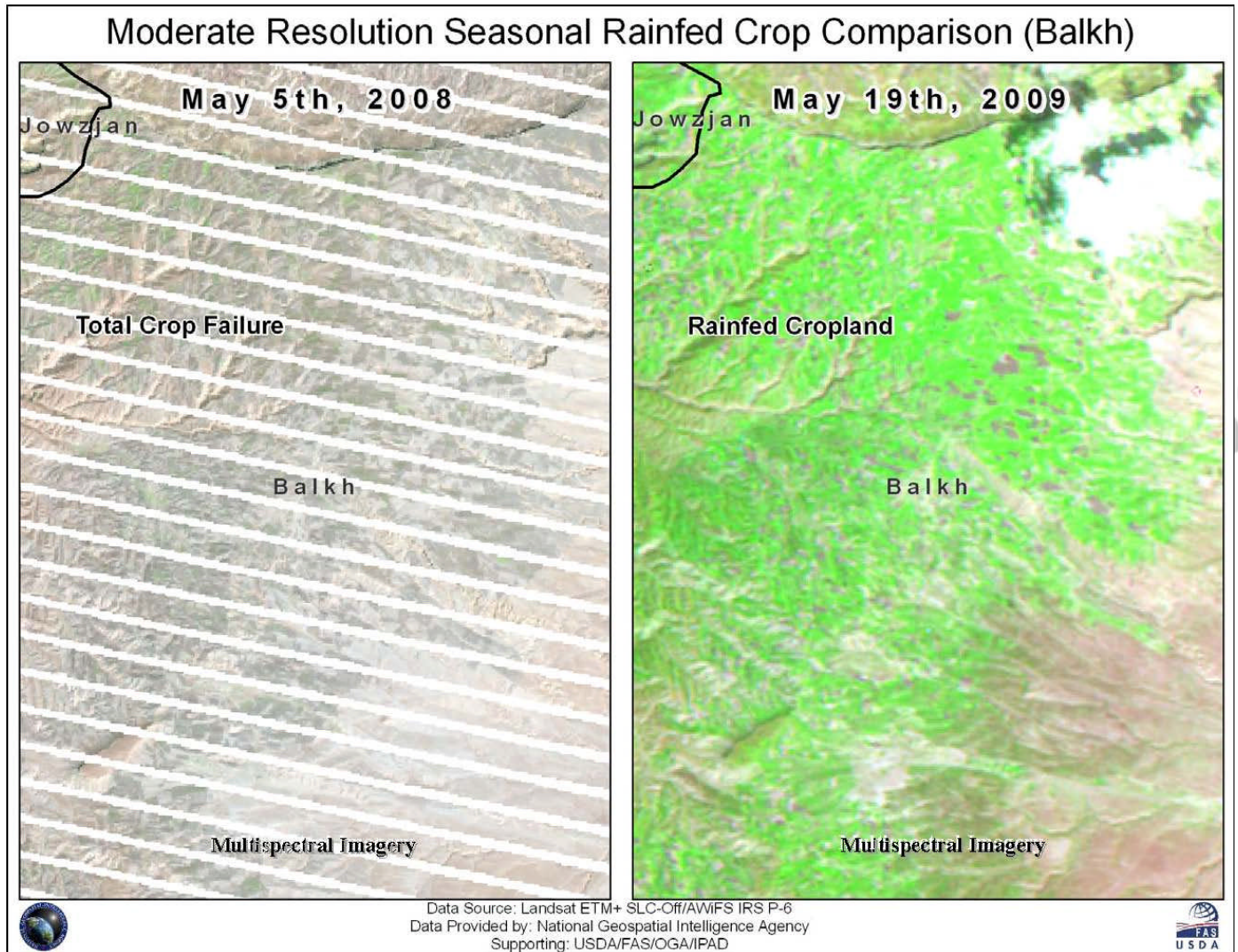


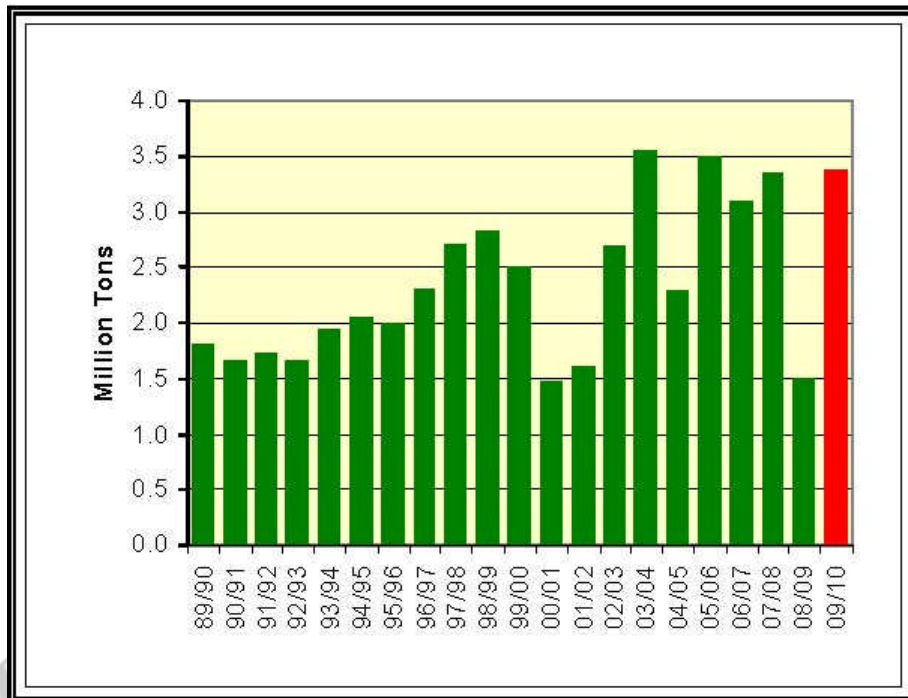
Figure 12: Moderate resolution imagery comparison of rainfed cropland: MY 2009/10 vs. MY 2008/09.



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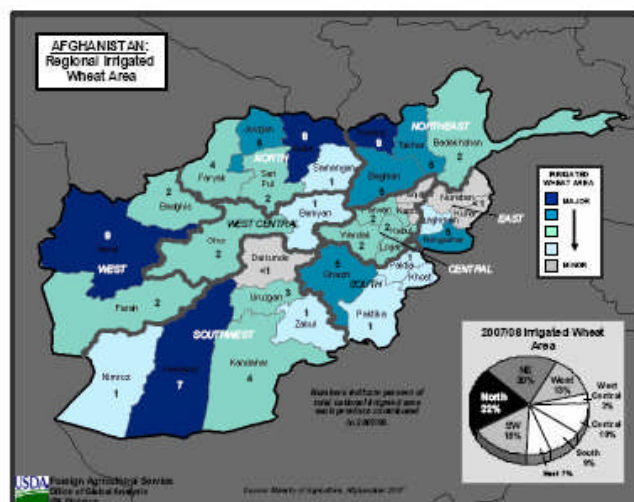
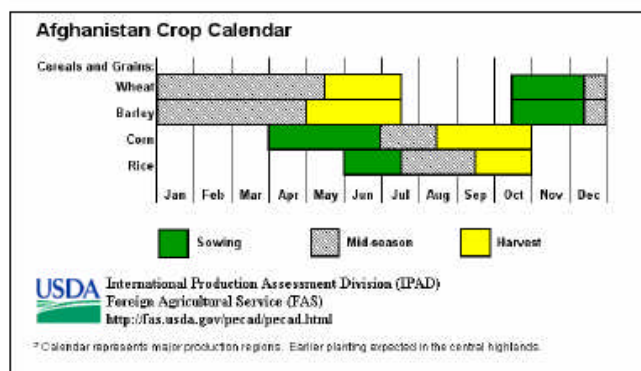
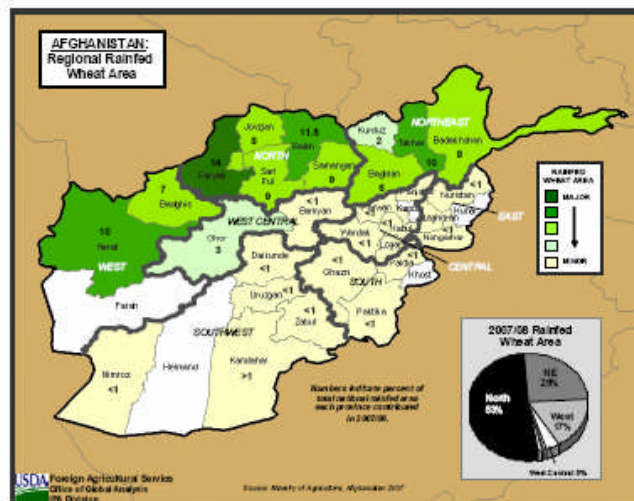
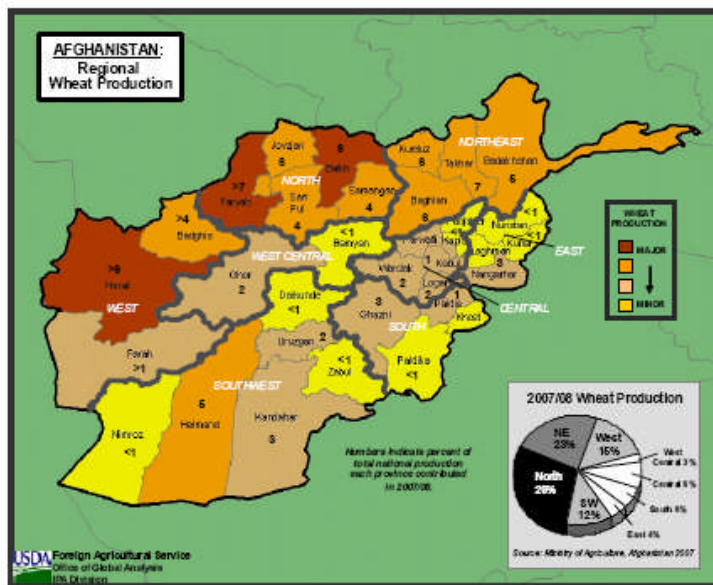
## AFGHANISTAN CROP STATISTICS

Market Year						5-year	Previous Year	
	04/05	05/06	06/07	07/08	08/09	09/10	Average	CHANGE % CHANGE
Area	1.766	2.349	2.190	2.200	1.600	2.220	2.021	0.600 37.50%
Yield	1.298	1.490	1.416	1.523	0.938	1.514	1.333	-0.159 -16.97%
Production	2.293	3.500	3.100	3.350	1.500	3.360	2.749	1.500 100.00%



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## APPENDIX



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